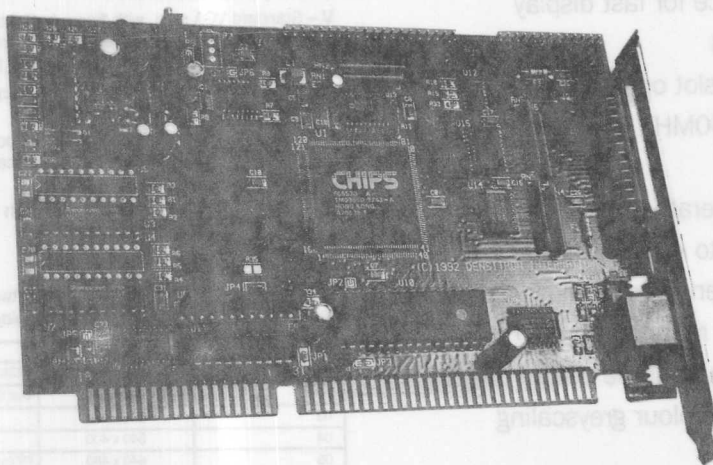# DENSITRON

PCX35 Colour Flat Panel VGA Controller

Catalog No: PRE/004

The PCX35 is an IBM VGA compatible graphics controller specifically designed to allow Densitron monochrome and colour flat panel displays to be used in IBM PC compatible systems. The PCX35's full compatibility with the VGA video standard will allow all flat panel technologies to be used in conjunction with any existing or new PC application software. The PCX35 is available in a number of versions, each designed to give optimum performance for a specific display technology. These include AC plasma, DC plasma, EL, monochrome LCD, passive matrix colour LCD and active matrix TFT technology. There is also a version which allows flat panel display operation in SVGA mode driving up to 1280 x 1024 pixels. Another key feature incorporated in the design is the ability to allow the user simultaneous CRT and flat panel operation. Up to 226K colours can be supported when utilising Densitron's latest FSTN passive matrix colour displays. On TFT LCD, EL and plasma displays the PCX35 will support 185K colours. Another design feature of the PCX35 has been the inclusion of a power supply capable of generating all the necessary positive or negative panel drive voltages for liquid crystal displays. This unit has also been designed to meet the strict on/off power sequencing requirements necessary when using LCD's. The card also includes a variety of programmable features to optimise display quality. These include a text enhancement mode, three selectable RGB colour-to-grey scale reduction options and polynomial FRC grey scale algorithm designed to reduce flicker on fast response "mouse quick" displays. For the prototype design engineer, the VGA BIOS is held in Flash memory allowing reprogramming. Connection to the PCX35 when using a FSTN colour display is by means of either an optional external 37-way D-type connector or a 40-way DIL header installed on the board. Pin sequencing has been optimised for ease of connection to all Densitron displays. For other flat panel displays connection is via the standard external 25-way D-type and the CRT via a 15-way connector. By offering displays and matching controller cards, Densitron provides the user with a TOTAL DISPLAY SOLUTION.

Features

- ❏ Fully IBM VGA compatible
- ❏ Supports all Flat Panel Technologies to 1280 x 1024 Dot Resolution
- ❏ Simultaneous CRT and Flat Panel operation
- ❏ 8 or 16 bit ISA slot compatible
- ❏ Direct Connection to Densitron FSTN colour displays
- ❏ Supports monochrome or colour Flat screen displays

- ❏ Up to 226k colours on passive matrix FSTN Colour Displays
- ❏ Proven DOS and OS/2 Compatibility
- ❏ On-board power supply for LCD panels with display protection on power sequencing
- ❏ Programmable VGA BIOS in Flash Memory
- ❏ Built in Flat Panel display enhancement programs

Mechanical

- ❑ Half-length 16-bit ISA card
- ❑ Single slot width in normal use. Two adjacent slot width required for some display interfaces.
- ❑ Dimensions 170.18mm x 106.68mm (6.7"x4.2")

Electrical

- ❑ VGA, EGA, CGA, MDA, Hercules compatible
- ❑ 16-bit memory interface for fast display updating in AT systems
- ❑ Autosensing 8-bit ISA slot operation
- ❑ Pixel clock speeds to 40MHZ from on-board clock synthesiser
- ❑ On-board LCD Vee generator. factory installed polarity option, + Vee to 40V, –Vee to –35V
- ❑ Direct connection to Densitron displays (external contrast potentiometer required for LCD's)
- ❑ Up to four bits per colour can be output directly for display with internal colour greyscaling

Software

- ❑ Register level software compatibility with IBM VGA controller
- ❑ BIOS supports all standard VGA function calls and displays modes
- ❑ Additional BIOS function calls provided to give control over special flat panel features if required
- ❑ Automatic centering and scaling of low resolution display modes onto 480 x 640 screens

Specification subject to change without notice.

Connector Pinout

Hardware Versions V, S and D are fitted with the standard 25-way female D-type for connection to the Flat Panel Display and a 15-way D-type is also provided for CRT connection. There are also two internal DIL connectors fitted, a 40 pin for connection to FSTN passive matrix displays and a 20 DIL which mirrors the external 25-way D-type. The C hardware version includes a 37-way D-type in place of the above allowing easy connection to FSTN Colour displays. Full pin assignment details are listed in the users manual.

PCX35 Part Numbering System

EXAMPLE – **PCX35V-01**   HARDWARE[*] VERSION   SOFTWARE[▲] VERSION

HARDWARE VERSION   [*]   [▲]

V – Standard VGA card, with frame buffer to support Simulscan, full flat panel support of monochrome LCD, Colour passive matrix FSTN, Active matrix TFT LCD, AC plasma and DC plasma, CRT.

S – SVGA version with added DRAM for Super VGA support of both CRT and flat panel displays.

D – Plasma display only, designed to support only plasma technology, enabling lower unit cost as no Simulscan or -Vee voltage generation facility is installed.

C – Colour LCD Passive matrix version with 37-way D-type connector fitted and no Simulscan facility.

SOFTWARE VERSION

This part of the part number defines the software version that the user wishes to have installed and is dependant on the display type to be driven.

Software version No.	Display Resolution	Display type	Hardware versions available
01	640 x 480	FSTN Passive Matrix Colour	V,S,C
02	640 x 480	Dual Scan Monochrome LCD	V,S
03	640 x 480	DC Plasma	V,S,D
04	640 x 400	AC Plasma	V,S,D
05	640 x 480	TFT Colour with display enable	V,S,C
06	640 x 480	TFT Colour	V,S,C
07	640 x 480	EL Display	V,S,D

Please contact your local sales office for the latest information on futher software versions suitable for your display requirement.

6.4"
(170.18)

4.2"
(106.68)

PCX35 Dimensional Drawing

Consult your local Densitron sales office for information on suitable displays types and applicable PCX35 versions.

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